PROJECT NUMBER : 4018
PROJECT TITLE : Paper Product Development
PROJECT LEADER : B. L. Goodman
PERIOD COVERED : February, 1991

I. REDUCED SIDESTREAM CIGARETTES (B. Goodman, B. Floyd)

A. **Objective:** Develop subjectively acceptable cigarettes with reduced sidestream.

B. **Results:**

Single Wrap Superslims: CI data for the January test run of single wrapped Superslims showed all physical specifications to be close to targets, and mainstream tar deliveries varied according to the base Coresta values of the papers. The sidestream panel smoked models made with papers at each end of the permeability specification range (11.5+/-2 Coresta), each at 10.4% monopotassium phosphate. The majority of the panel could not tell the difference between the cigarettes. The control double wrap and the target Coresta model have been forwarded to Chemical Research for room studies.

Cigarettes from a menthol machinability run in February have been tested for sidestream visibility and ash appearance. Bobbins for this run were selected at the middle permeability level of 11-12 Coresta, and several bobbins were rewound with the wire side out. Neither test model showed any problem with staining behind the charline, and no difference in ash appearance could be seen due to the difference in direction of the paper. Sidestream visibility was reduced by 77% for the control, and 69% and 73% for the two test models. Another set of cigarettes with non-menthol filler has been run in Louisville, and these models will be tested to see if there is a real difference in sidestream visibility between the two paper directions.

A set of QA standards was prepared by Kimberly-Clark with different levels of monopotassium phosphate and calcium carbonate. Testing of the sheets will be coordinated by Analytical Research, and one additional sample with a higher level of chalk will be added when Kimberly-Clark runs their next production run.

Lotus: Low sidestream paper (V1 - 47 g/m^2, 33% $CaCO_3$) was coated with two levels of potassium phytate from Chemical Research. A control was also coated with monopotassium phosphate at an equal potassium level. Cigarettes have been made with these papers and are awaiting evaluation.

Ambrosia II: The 47 g/m^2 low sidestream paper (V2) at 4.5 Coresta was coated on the sizepress with monopotassium phosphate to give 12% on the paper. Part of the bobbin was also coated with Aromatek-245 at the same level as in last years POL tests. The finished bobbins were given to Product Development-USA for making cigarettes.

Conventional and low sidestream papers were coated for a room odor study to be conducted by PED with cigarettes of varying degrees of sidestream visibility

reduction. Different combinations of monopotassium phosphate, malonic acid and Aromatek-245 were applied with the sizepress and tunneldryer systems. Cigarettes have been made and are awaiting sidestream visibility before turning them over to Chemical Research and PED.

C. Plans: Complete the visibility testing of single wrap Superslims, and assist in the evaluation of paper additives and Coresta levels on the next millrun by K-C.

Evaluate cigarettes with potassium phytate coating on the paper, and coat the 47 g/m^2 paper with a non-volatile acid in combination with monopotassium phosphate.

Coat the new magnesium carbonate papers from Ecusta with various additives, and make machine made cigarettes for evaluation.

II. SIDESTREAM VISIBILITY TESTING

A. Objective: Determine sidestream visibility of experimental cigarettes.

B. Results: Seventeen models with varying levels of monopotassium phosphate on 47g/m^2 base papers V1, V2, and V3 from the Ambrosia II project were tested on the 8-port. Results have been described in a memo. Generally, the visibility followed the expected trends for additive level and Coresta permeability.

A number of handmade cigarettes were constructed from handsheets from Chemical Research and with magnesite papers, both for visibility testing and for subjective screening.

C. Plans: Continue testing for sidestream visibility of handmade cigarettes on the single port instrument.

Determine 8-port visibility for machine-made experimental cigarettes.